# School Continues to Serve as a “Beacon of Hope”

## Full Mitigation Best Practice Story

*Jefferson County, Texas*

**Sabine Pass, TX** - On the morning of September 13, 2008, Hurricane Ike tore into Sabine Pass, located on the upper Texas Gulf Coast. The storm destroyed many of the town’s buildings, but one structure, the Sabine Pass School with its “Beacon of Hope” lighthouse, escaped seemingly unscathed. This achievement didn’t happen overnight. Knowing the school was the focal point of the community, school officials began planning in 1998 to safeguard it. People used the school for holiday celebrations and many other community activities. Residents were loyal to the school, and so a bond measure was easily passed to help with the costs associated with building a new 57,644-square-foot structure that would be stronger and safer than the original school building.

The school’s former superintendent, Dr. Tom Harvey, and other officials wanted to design a structure that could withstand a Category 4 hurricane. They wanted the building to be a reflection of Sabine Pass School and the community. They also wanted a structure that would be a model for other schools along the coast. School officials chose an architectural firm to design and oversee the construction that was knowledgeable in successful coastal mitigation techniques and building and wind code requirements established by the Texas Department of Insurance.

To resist the hurricane force winds, architects designed a flat roof with three layers of protection. These layers begin with corrugated metal decking followed by the placement of rigid insulation, topped off by a rubber membrane. Impact-resistant windows were made of 9/16-inch laminated safety glass.

Meanwhile, strengthening the elevated foundation became one of the main design missions suggested by the architectural firm. “It’s amazing what had to be done prior to the actual elevation of the structure,” said Malcolm Nash, Sabine Pass School’s current superintendent. One of the strengthening techniques was the use of structural elements called auger cast piles, which support the footings and columns of the school’s open foundation. Contractors drilled holes 72 feet deep; as the drill came out, concrete was injected into the holes. While the concrete was wet, rebar was inserted as the final reinforcing element. Beneath the school building are 360 auger casts piles, each six to eight inches wide, with two to five auger casts supporting each column that the school sits on. To complete the strengthening process are footings above all of the auger cast piles that hold the columns. Nash said the underground mitigation steps were “crucial to the fortification of elevating the school” and ultimately helped protect it from the powerful forces of both hurricanes Rita (2005) and Ike.

Sabine Pass School is located on the coastal plain, about three miles from the coast of the Gulf of Mexico. Sabine Lake lies adjacent to the east side of town less than a mile away. Considering both of these factors, it was necessary for the school to elevate at least 12 feet above sea level to be compliant with the National Flood Insurance Program (NFIP) guidelines. The architects knew from their analysis of the school’s location that there was the potential for up to 15 feet of water should a large hurricane occur. To mitigate for this possibility, the architects recommended the school elevate an additional three feet to equal 15 feet.

School officials agreed, but chose to elevate even higher—to a total of 18 feet. When Hurricane Ike made landfall in Sabine Pass, it was this voluntary measure that saved the school. If a structure is already in the process of being elevated, additional height costs may be relatively minimal. The major cost of elevating a structure comes from whatever initial actions must be taken to start the process of elevation. Costs for the project may include planning, designing, acquiring an elevation certificate, site work, hiring contractors, and bringing in proper equipment. Often these elements determine the basic costs in a structure’s elevation budget. Sabine Pass School officials chose to elevate six feet higher than required by the NFIP. This decision, which ultimately saved the school, only increased the project’s final budget by about one percent.

In 2003, five years after first planning a safer and stronger school, the new elevated structure was complete, and Sabine Pass School opened its doors. Two severe hurricanes, Rita and Ike, tested the mitigation techniques used at the school. Although in both cases there was damage, mud, and debris everywhere, the mitigation actions appeared to have worked.

“We knew we needed to get students back in, to give them and the community stability and hope that we can get things back to normal,” said Nash. Realizing this need, school employees worked tirelessly to clean the mud and debris and to prepare the school for the students’ return. Through tremendous effort and despite receiving 16 feet of water and up to three feet of mud on the school’s property, the school reopened October 6, 2008, with 92 percent of the students returning. Only 17 days of instruction were missed.

Nash believes that bringing the school back after the storm was the first important step to the recovery of the community. He said the lighthouse in front of the school is called “The Beacon of Hope” and he believes the residents feel more confident about rebuilding their homes because they see how well the school has fared.

“The spirit of this community is strong, and we’re going to take our new lessons learned and we’re going to come back,” said Nash.

## Activity/Project Location

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|---|---|
| Geographical Area: | **Single County in a State** |
| FEMA Region: | **Region VI** |
| State: | **Texas** |
| County: | **Jefferson County** |
| City/Community: | **Sabine Pass** |

## Key Activity/Project Information

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|---|---|
| Sector: | **Public/Private Partnership** |
| Hazard Type: | **Flooding** |
| Activity/Project Type: | **Elevation, Structural** |
| Structure Type: | **Concrete, Reinforced** |
| Activity/Project Start Date: | **11/1998** |
| Activity/Project End Date: | **09/2008** |
| Funding Source: | **Local Sources** |
| Funding Recipient: | **Critical Facility - School** |
| Funding Recipient Name: | **Sabine Pass School ISD** |

## Activity/Project Economic Analysis

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|---|---|
| Cost: | **Amount Not Available** |
| Non FEMA Cost: | **0** |

## Activity/Project Disaster Information

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|---|---|
| Mitigation Resulted From Federal Disaster? | **Yes** |
| Federal Disaster #: | **1257 , 10/21/1998** |
| Federal Disaster Year: | **1998** |
| Value Tested By Disaster? | **Yes** |
| Tested By Federal Disaster #: | **1791 , 09/13/2008** |
| Repetitive Loss Property? | **Unknown** |

## Reference URLs

No URLs were submitted

## Main Points

No Main Points were entered.

Sabine Pass School

Sabine Pass School2